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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/786,754

02/25/2004

Tsuyoshi Okutani

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EXAMINER

WANG, KENT F

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

03/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/786,754	<b>Applicant(s)</b> OKUTANI ET AL.	
	<b>Examiner</b> KENT WANG	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-15 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendments, filed on 01/22/2008, have been entered and made of record. Claims 1-15 and 17 are pending.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 11-15 and 17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki, US 4,993,815.

As for claim 15, Yamazaki disclosed optical zoom mechanism (a zoom lens assembly, Fig 1) comprising:

- a zoom lens (zoom lens, col. 3, lines 29-40);
- a holding frame which holds the zoom lens (a stationary frame 2, Fig 1);
- a rotational axis rod (optical axis O) having gears (zooming transmission gear 1b, Fig 1) at the both end thereof (col. 3, lines 41-54);

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- a first group of rate reducing gears (zooming transmission gear 1b, Fig 1) which engage the gear at one end of the rotational axis rod (col. 3, lines 41-54);
- a second group of rate reducing gears (focusing shaft 34) which engage the gear at another end of the rotational axis rod (col. 7, lines 22-34);
- a motor (a zooming motor, col. 3, lines 41-54) which drives the second group of rate reducing gear (col. 3, lines 41-54);
- and a cam body driven by the first rate reducing gears gear (a zooming motor driving unit provided at the midpoint of the outer periphery of the cylinder; col. 3, lines 41-54), the cam body having at least on spiral cam groove (three spiral cam grooves 2b, Fig 2) formed by the confronting cam planes (stationary frame 2, Fig 2) (col. 3, line 55 to col. 4, line 3); and
- a cam groove inserting member (driving pins 4a, Fig 2) provided on the holding frame (differential frame 4, Fig 2) (col. 3, line 55 to col. 4, line 3),
- wherein the zoom lens (the lens assembly) is driven by inserting the cam groove inserting member (driving pins 4a, Fig 2) into the spiral cam groove (cam groove 2a, Fig 2) of the cam body, and whereby zooming is performed by moving the holding frame with the cam body (col. 3, lines 29-54, col. 4, lines 12-57, and col. 5, lines 9-50).

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 11-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Filipovich (US 3,744,884) in view of Lemke (US 4,934,789).

Regarding claim 11, Filipovich discloses a cam apparatus (a lens mount assembly 10, Fig 2) having first and second spiral cam grooves (cam track 44, 68, Fig 1) for moving an object (sleeve 90, Fig 2) with a cam-driving force which is generated by cam-driving a cam groove inserting member inserted in each cam groove (cam track 44, 68, Fig 1), a cam apparatus comprising:

- a cam base body (a carrier body 50, Fig 1) further comprising a first stepped portion (first barrel portion 16) forming and approximately vertical plane (cam surface portions 20, Fig 1) between said first sliding portion (first barrel portion 16) and said middle portion (second barrel portion 24) thereby defining a cam plane of the first spiral cam groove (cam track 44) and a second stepped portion (second barrel portion 24) thereby forming and approximately vertical plane (cam surface portions 40, Fig 1) between said second sliding portion (second barrel portion 24) and said middle portion (first barrel portion 16) thereby defining a cam plane of the second spiral cam groove (cam track 68) (col. 2, lines 12-68);
- a first cam frame (first barrel portion 16) having another cam plane (abutments 22, Fig 1) confronting the one cam plane (cam surface portions 20) of the first cam groove (cam track 44) and provided non-rotatably so as to be able to slide on one sliding portion (axial sliding movement) (col. 2, lines 12-49);
- a second cam frame (second barrel portion 24) having another cam plane (spacer members 36, Fig 1) confronting the one cam plane (cam surface portions 40) of

the second cam groove (cam track 68) and provided non-rotatably on the second sliding portion so as to be able to slide (axial sliding movement) (col. 2, lines 12-68);

- a forcing device (a sleeve 90, Fig 2) which connect the first and the second cam frames to the cam base body (barrel portion 16, 24) (col. 2, line 12 to col. 3 line 14); and
- cam groove inserting members (several cam follower studs 54 and a cell drive stud 56, Fig 1), each of which is received within one of the first and second spiral grooves (cam tracks 44 and 68) (col. 2, lines 35-49)

Filipovich does not disclose a cam base body having a generally cylindrical middle portion. However, Lemke disclosed a cam base body having a generally cylindrical middle portion (a lens barrel 1) and first and second sliding portions front and rear lens mountings 5, only the front one is illustrated in the figure) formed at both ends of said middle portion and said sliding portions having a smaller diameter than that of said middle portion (front and rear lens mountings 5 having a smaller diameter than the lens barrel 1, as lens mounting could pass through the lens barrel) (col. 2, lines 41-49)

It would have been obvious to a person of the ordinary skill in the art to combine Lemke and Filipovich's lens mount assembly to achieve the claimed invention. As disclosed in Lemke reference, the motivation for the combination would be to provide the lens mountings can be inserted into the lens barrel through the front or rear slits in such a manner that the lens barrel does not have to be constructed out of two half shells that consequently would have to be securely joined by means of a medium, thereby increasing the diameter, therefore

the lens barrel and two lens mountings may be moved toward each other for setting the focal length and together for focusing (col. 1, lines 42-49, Lemke).

Regarding claim 12, Filipovich discloses an adjusting mechanism (a sleeve 90, Fig 2) which adjusts a distance between the confronting cam planes (cam surface portion 20) of each of the first and the second cam grooves (cam tracks 44, 68) (col. 3, lines 1-54).

Regarding claim 13, Filipovich discloses at least one of the confronting cam planes (abutment 22, Fig 1) of at least one of the first and the second spiral grooves (cam tracks 44 and 68) is sloped (the spacing of the cam tracks formed, col. 4, lines 3-8), and wherein the slope cam plane (the spacing of the cam tracks formed) gives a cam driving force along a direction of the rotational axis of the cam groove and pushing force along a direction orthogonal to the direction of the rotational axis of the cam groove to the cam groove inserting member (carrier body has a length sufficient to prevent tilting and misalignment of the cell in the barrel portions while permitting rotational and axis sliding movement of the cell) (col. 2, lines 35-49 and col. 3, line 54 to col. 4, line 8).

Regarding claim 14, Filipovich discloses the forcing device (a sleeve 90, Fig 2) is fastened at one end to the first cam frame (first barrel portion 16, Fig 1) and another end to the second cam frame (second barrel portion 24, Fig 1) and the forcing device presses the first and the second cam frame (barrel portions 16, 24) to the cam base body (carrier body 50, Fig 1) along one direction (axial sliding movement) (col. 2, lines 12-68).

7. Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki (US 4,993,815) in view of Filipovich (US 3,744,884), and further in view of Lemke (US 4,934,789).

As for claim 17, the limitations of claim 15 are taught above, Yamazaki does not explicitly disclose a cam body comprises a cam base body having two spiral grooves, two cam planes, and two cam frames which provided non-rotatably so as to be able to slide on the other sliding portion and Filipovich also does not disclose a cam base body having a generally cylindrical middle portion.

Filipovich disclosed a cam body of the optical zoom mechanism comprising:

- a cam base body (a carrier body 50, Fig 1) further comprising a first stepped portion (first barrel portion 16) forming and approximately vertical plane (cam surface portions 20, Fig 1) between said first sliding portion (first barrel portion 16) and said middle portion (second barrel portion 24) thereby defining a cam plane of the first spiral cam groove (cam track 44) and a second stepped portion (second barrel portion 24) thereby forming and approximately vertical plane (cam surface portions 40, Fig 1) between said second sliding portion (second barrel portion 24) and said middle portion (first barrel portion 16) thereby defining a cam plane of the second spiral cam groove (cam track 68) (col. 2, lines 12-68);
- a first cam frame (first barrel portion 16) having another cam plane (abutments 22, Fig 1) confronting the one cam plane (cam surface portions 20) of the first cam groove (cam track 44) and provided non-rotatably so as to be able to slide on one sliding portion (axial sliding movement) (col. 2, lines 12-49);
- a second cam frame (second barrel portion 24) having another cam plane (spacer members 36, Fig 1) confronting the one cam plane (cam surface portions 40) of the second cam groove (cam track 68) and provided non-rotatably on the second



sliding portion so as to be able to slide (axial sliding movement) (col. 2, lines 12-68);

- a forcing device (a sleeve 90, Fig 2) which connect the first and the second cam frames to the cam base body (barrel portion 16, 24) (col. 2, line 12 to col. 3 line 14); and
- cam groove inserting members (several cam follower studs 54 and a cell drive stud 56, Fig 1), each of which is received within one of the first and second spiral grooves (cam tracks 44 and 68) (col. 2, lines 35-49)

Lemke disclosed a cam base body having a generally cylindrical middle portion (a lens barrel 1) and first and second sliding portions front and rear lens mountings 5, only the front one is illustrated in the figure) formed at both ends of said middle portion and said sliding portions having a smaller diameter than that of said middle portion (front and rear lens mountings 5 having a smaller diameter than the lens barrel 1, as lens mounting could pass through the lens barrel) (col. 2, lines 41-49)

It would have been obvious to a person of the ordinary skill in the art to combine Yamazaki, Lemke and Filipovich's lens mount assembly to achieve the claimed invention. As disclosed in Filipovich reference, the motivation for the combination would be to provide a relatively simple, inexpensive mount assembly for adjustably supporting components of a variable magnification zoom unit (col. 1, lines 4-10, Filipovich). And Lemke reference further disclosed the combination would be to provide the lens mountings can be inserted into the lens barrel through the front or rear slits in such a manner that the lens barrel does not have to be constructed out of two half shells that consequently would have to be securely

joined by means of a medium, thereby increasing the diameter, therefore the lens barrel and two lens mountings may be moved toward each other for setting the focal length and together for focusing (col. 1, lines 42-49, Lemke).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Atsuta et al. (US 4,834,514), Nomura et al. (US 2001/0017662), Suemoto et al. (US 2002/0018140), Painter (US 4,941,861), Chan (US 5,268,794), and Oda et al. (US 5,037,187).
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KW  
12 March 2008

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